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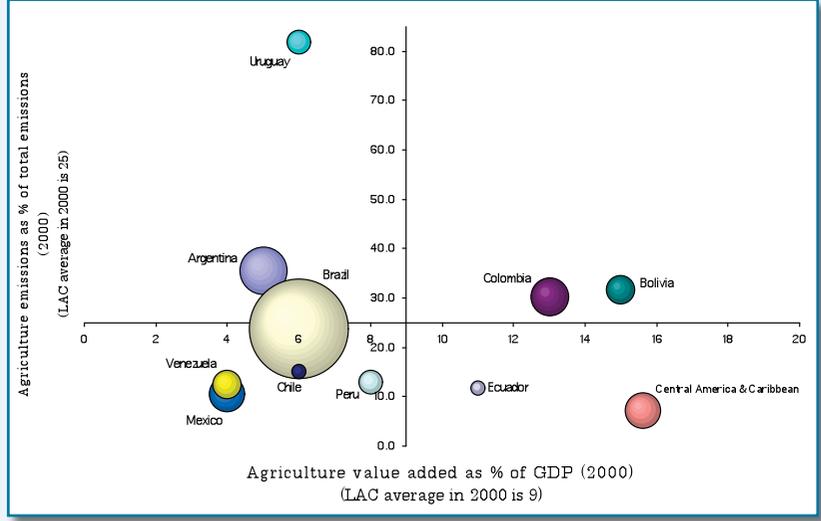
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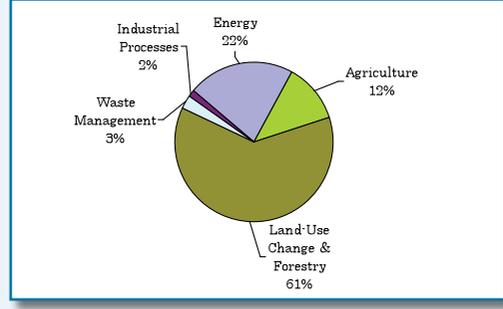
Country Note on Climate Change Aspects in Agriculture

This Country Note briefly summarizes information relevant to both climate change and agriculture in Ecuador, with focus on policy developments (including action plans and programs) and institutional make-up.

Contribution of agriculture (without LUCF) to the economy and to emissions in LAC countries
(size of bubble in MTCO₂ of LUCF emissions; axes cross at LAC average)

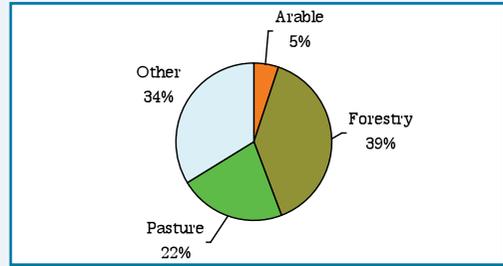


Percent of GHG emissions in CO₂ equivalent, by sector (2000)



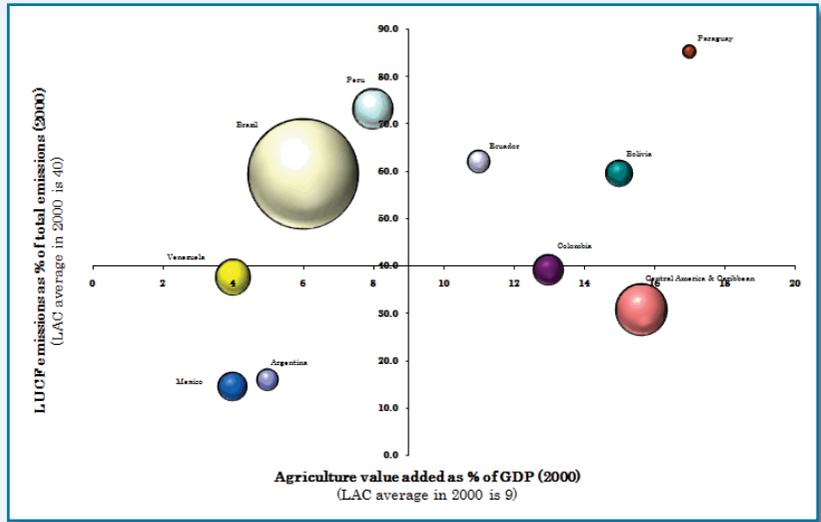
Source: World Resources Institute <http://cait.wri.org>

Land use (2005)

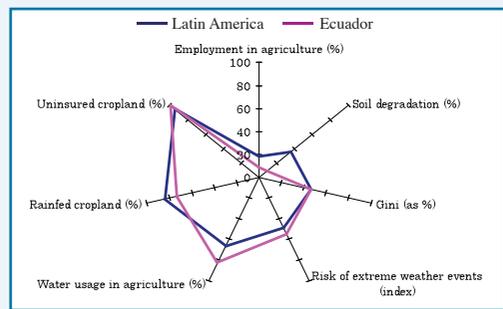


Source: World Development Indicators

Contribution of agriculture to the economy and of LUCF to emissions in LAC countries
(size of bubble in MTCO₂ of LUCF emissions; axes cross at LAC average)



Vulnerability Indicators



Note: Employment in agriculture (% of total employment)*; Rainfed cropland (% of total cropland)*; Gini*; Water usage in agriculture (% of total annual fresh water withdrawals)*; Uninsured cropland (% of total cultivated land area)**; Soil degradation (% of total land)***; Risk of extreme weather events (index; annual average 1997-2006)****

Sources: *World Development Indicators 2007, 2000-2007 average; **IADB, IICA, 2002/2003 figures; ***FAO AGL 2005¹; ****Germanwatch

Note: In the first bubble graph, the total emissions for Uruguay do not account for the positive effects of LUCF (i.e. afforestation efforts). If they are considered, agriculture represents 22% of total emissions. Because of afforestation efforts in Uruguay and Chile, land use change and forestry (LUCF) is not a net contributor to emissions; hence the countries do not appear in the second bubble graph, but are considered in the calculation of the average in the vertical axis.

¹ <http://www.fao.org/landandwater/agll/glasod/glasodmaps.jsp?country=ECU&search=Display+map+%21>

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Summary

Like most countries in Latin America, Ecuador has submitted one national communication to the United Nations Framework Convention on Climate Change (UNFCCC) with a second one under preparation. Land use change and forestry are the largest contributors to GHG emissions in the country. The emission reduction potential of the agricultural sector (including land use change and forestry) is significant and not yet sufficiently explored in the country. Agriculture is highly vulnerable to weather variability. Sustainable water management and climate-sensitive insurance coverage for agricultural production can reduce some of the observed vulnerabilities in the country.

Working definitions

Agriculture is defined as a managed system of crops, livestock, soil management, forest resources (productive use, goods & services) and water resources (irrigation), including land use and land use change. **Climate change** encompasses both **mitigation** and adaptation activities within the agricultural sector. On the mitigation side, the focus is on the potential to reduce green house gas emissions by the different sub-sectors. On the **adaptation** side, the focus is on the potential to build resilience to climate and to increase the adaptive capacity through sustainable management of agriculture and other complementary factors (e.g. financial instruments). There is no specific **time frame** used in the country notes. An effort was made to collect the most recent available information on country indicators and policy matters.

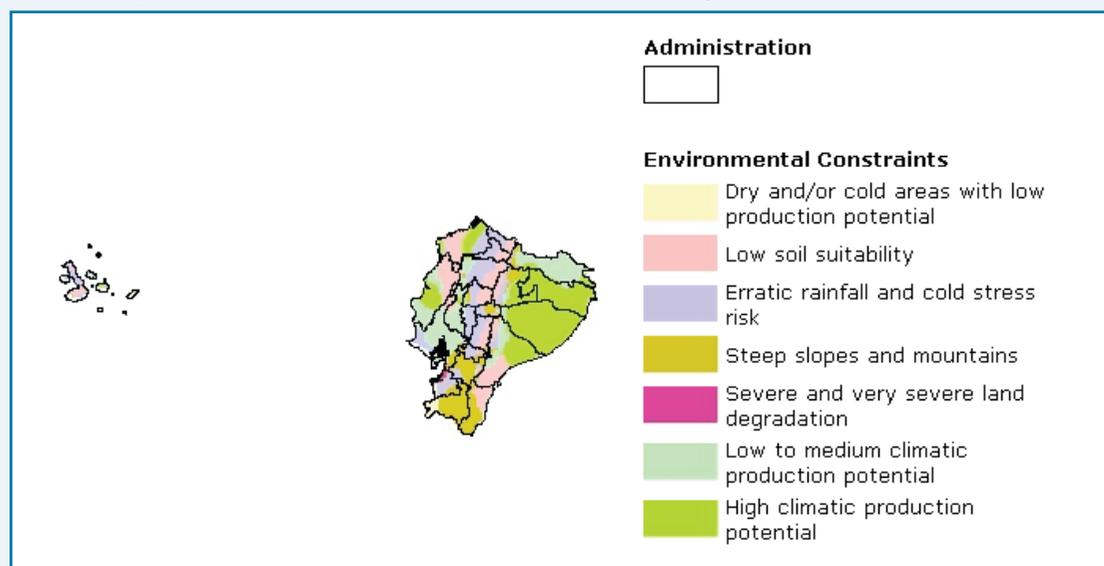
Acknowledgments:

This *Country Note* was produced by a World Bank team of specialists (in agriculture, forestry, social development, risk and knowledge management) from the Latin America and the Caribbean region and other units of the World Bank. The team is very grateful for all the comments and suggestions received from the focal points on climate change and agriculture in many of the countries.

1. The Climate Context

The baseline map provides a visual characterization of Ecuador's agricultural potential given current environmental constraints and their regional distribution. Around 27% of Ecuador's land is used for agriculture (22% for pasture and 5% for cultivation), with forestry occupying 39% of the land in the country (WDI, 2005).

Baseline map: Current Major Environmental Constraints related to Agricultural Potential



Source: FAO **Note:** For more maps on Ecuador and agricultural resources, go to <http://www.fao.org/countryprofiles/Maps/ECU/04/ec/index.html>

1.1. Country Projections

According to the First National Communication and to climate scenarios using general circulation models, the temperature is expected to increase by between 1°C (optimistic scenario) and 2°C (pessimistic scenario) and the precipitations to increase by 20% (optimistic scenario) or to decrease by 15% (pessimistic scenario) by 2010.

In recent years (between 2002 and 2008), floods have had the highest human and economic impact in Ecuador, with losses for the period 1997-2006 averaging 0.01% of GDP – 400,905 people have been affected by floods (3 events) with the cost of damages reaching US\$ 63 million².

1.2. Agriculture-Related Impacts

According to the **Ministry of Agriculture, Livestock, Aquaculture and Fisheries**, the floods that affected Ecuador in January 2008 lead to the destruction of 114,384 hectares of agricultural land, the majority of these being pastures for animal grazing, rice fields as well as land dedicated to the cultivation of cocoa, banana and corn. The total losses in the agricultural sector summed up to US\$ 161 million, with the coastal provinces suffering most of these losses³.

² [http://www.emdat.be/Database/CountryProfile/countryprofile.php?disgroup=natural&country=ecu&period=1999\\$2008](http://www.emdat.be/Database/CountryProfile/countryprofile.php?disgroup=natural&country=ecu&period=1999$2008)

³ http://www.diariodeibiza.es/secciones/noticia.jsp?pRef=3354_11_224937__Ciencia-inundaciones-Ecuador-provocan-perdidas-millones-dolares

2. The Policy Context

Like most countries in the region, Ecuador has submitted only one **National Communication**⁴ to the **United Nations Framework Convention on Climate Change**⁵ (UNFCCC) in November 2000, laying out the actions that the government has already taken and the analytical basis for its policy response to climate change and its commitment to take future actions within an official international framework. The Communication established the National GHG Inventory with 1990 as its base year; it includes vulnerability studies for the agricultural, forestry, coastal and water sector, as well as proposes mitigation and adaptation measures for these sectors along with a description of ongoing adaptation projects by sector.

A **Second National Communication** is under preparation and scheduled to be completed by March 2010. One of the components of this Communication will be the National Climate Change Adaptation Strategy, as well as a revised GHG national inventory.

2.1. National Climate Change Plans, Strategies and Programs

A **National Climate Change Adaptation Strategy** has been proposed by the Ministry of Environment and will be included in the Second National Communication.

2.2. Agricultural Sector Initiatives

The **Ministry of Environment**⁶ (MAE, Spanish acronym) oversees Ecuador's commitments to UNFCCC and other climate change related actions and is the Designated National Authority (DNA) on climate change and, in particular, on Clean Development Mechanism (CDM) in Ecuador. The Ministry counts with a **Climate Change Unit** as of August 2000, and as of October of 2009 the Ministry also has an **Under Secretary of Climate Change** whose main focus is to generate and promote adaptation and mitigation actions by fostering the national capacity at all levels on the subject of climate change. The Under Secretary coordinates climate change related projects that are being supported inter alia with the Global Environmental Fund, the World Bank, and the United Nations Development Program. Among its various functions, it also coordinates the National Communication, develops the national climate change strategies, as well as works in the promotion of the Clean Development Mechanism and the carbon market to benefit all sectoral working groups.

The **International Center for Research on the El Niño Fenomenon**⁷ (CIIFEN, Spanish acronym) has climate change capacity for generation of climate data and its analysis.

3.1. Inter-Sectoral Coordination

The Under Secretary of Climate Change is the political and coordinating body, responsible for the implementation of processes related to the issue of climate change. Its main function is to propose and design policies and strategies related to climate change, to develop the national capacity aimed at facing weather variability and climate change as well as coordinating actions related to climate change with those related to biodiversity, desertification and global environmental themes, in general.

3.2. Agricultural Sector Institutions

The **Ministry of Agriculture, Livestock, Aquaculture and Fisheries**⁸ (MAGAP, Spanish acronym) has as a main objective to support the rural and agricultural development, as well as the development of agroforestry and irrigation systems.

3. The Institutional Context

⁴ <http://unfccc.int/resource/docs/nat/ecunc1s.pdf>

⁵ www.unfccc.int

⁶ www.ambiente.gov.ec

⁷ <http://www.ciifen-int.org/>

⁸ www.magap.gov.ec

The **National Secretariat of Water**⁹ (**SENAGUA**, Spanish acronym) is in charge of water management in Ecuador.

The **National Institute of Meteorology and Hydrology**¹⁰ (**INAMHI**, Spanish acronym) is in charge of producing weather forecasts, used for emitting early alerts in case of extreme weather events, useful for the agricultural sector, as well as providing specific information on agrometeorology. It performs research studies on climate change in the different regions of the country, as well as future climate change scenarios for Ecuador. It works jointly with the Ministry of Environment to generate new climate scenarios, as well as analyzes statistical hydro-meteorological information and a consensus of the different climate scenarios. It also counts with a **Climate Observation System** since 1961 composed of 260 weather stations, designed to monitor weather variables in the different regions of the country. Of these, 40 stations measure and produce climate variables, transmitted in real time and used for producing forecasts of climate anomalies such as floods and droughts. It is unclear how many of these really operate.

3.3. Fostering Capacity to Deal with Climate Change

Emissions inventory: To date, Ecuador has only one GHG Inventory with 1990 as its base year. It includes information on emissions from agriculture, including land-use change and forestry, providing disaggregated information by type of emission and type of agricultural resource. A second GHG inventory is in the works and will be included in the Second National Communication that will be completed by 2009.

Studies related to climate change and agriculture: Several vulnerability studies have been conducted in preparation for the First National Communication in the agricultural, forestry, coastal and water sector, as well as a climate study proofing the occurrence of climate change in Ecuador¹¹ (*Evidencias de cambio climático en Ecuador*), one on the receding of tropical glaciers (*Retrosceso de glaciares tropicales*) and one on the current vulnerability of climate risks in the water sector in different watersheds in the Country.

The World Bank published a flagship document for the entire region of Latin America and the Caribbean titled "Low carbon, High Growth: Latin American Responses to Climate Change"¹², encompassing information on climate change impacts in the region, on the potential contribution to mitigation efforts as well as a listing of future low carbon-high growth policies. A further initiative of the World Bank is a project titled "Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes 2008-2012"¹³ for Bolivia, Peru and Ecuador. This project aims to implement pilot adaptation activities that illustrate costs and benefits of adaptation.

4. The Impact of Agriculture on Climate Change - Mitigation Measures

In 2000, the agricultural sector accounted for 12% of all GHG emissions, the majority being methane emissions (70% of total), mainly from enteric fermentation from farm animals, and land-use change and forestry accounted for 61% of total GHG emissions, mainly CO₂ from conversion of forests and meadows.

Ecuador's carbon dioxide emissions per capita in 2004 stand at 2.2t CO₂/capita, compared to the Latin America region of 2.6t CO₂/capita and the world at 4.5t CO₂/capita. The country accounts for 0.1% of global emissions of GHG¹⁴.

⁹ www.cnrh.gov.ec

¹⁰ www.inamhi.gov.ec

¹¹ <http://www.inamhi.gov.ec/html/inicio.htm>

¹² http://www-wds.worldbank.org/external/default/WDSContentServer/WDS/IB/2009/02/27/000334955_20090227082022/Rendered/PDF/476040PUB0Low0101Offical0Use0Only1.pdf

¹³ <http://web.worldbank.org/external/projects/main?pagePK=64283627&piPK=73230&theSitePK=40941&menuPK=228424&Projectid=P098248>

¹⁴ http://hdrstats.undp.org/countries/country_fact_sheets/cty_fs_ecu.html

4.1. Action Frameworks

4.1.1. Forestry and Land Use Change

According to the First National Communication, land-use change and forestry are responsible for 69.5% of all CO₂ emissions in 1990. Of these, 74% are emitted from the conversion of forests and meadows into other uses and the remaining 26% from changes occurring in forests and other wooden biomass. Deforestation activities have reached alarming proportions in Ecuador with an average annual net deforestation rate for the period 1990-2005 of 1.4%, the 5th largest in Latin America and the Caribbean, after Haiti, El Salvador, Nicaragua and Guatemala¹⁵. The annual forest losses could reach between 60,000 and 360,000 hectares of forests annually. Of the total losses, only between 3% and 4% are registered in commercial forests, the rest being registered in native ones¹⁶. One of the causes of deforestation, besides the exploitation of the oil industry and the exploitation of wood, is the clearing up of space for cropland and grazing of livestock.

According to a future scenario for the forestry sector for 2010 and 2030 and applying mitigation measures, whereby an annual reforestation rate of more than 30,000 hectares is considered and no intervention in natural protected areas takes place, a 29% increase of forested area would be achieved by 2010 and of 76% by 2030, with a conservation of natural protected areas of 11.7% and 26.2% by the years 2010 and 2030, respectively. Not applying mitigation measures in this sector will lead to a diminishing forest cover of 18.6% by 2010 and of 37.1% by 2030 as supposed to the base year of 1990.

The following mitigation measures have been identified in this sector in the First National Communication: i) sustainable forest management of native forests; ii) productive and protective commercial forest plantations; iii) promotion of agroforestry and sylvo-pastoral systems; iv) management of protective forests of water basins and v) sustainable management of fragile ecosystems.

4.1.2. Livestock

Livestock is responsible for 97% of total methane (CH₄) emissions from enteric fermentation from farm animals. Also, the handling of farm manure is responsible for 2.3% of total methane emissions.

Among the mitigation measures identified in the First National Communication are:

- improvement of animal diet: supplementing with legumes, thus reducing the quantity of methane emitted by improving the animals' digestive processes (a project in this sense has already been proposed, resulting in the possible reduction of between 15% and 20% of methane emissions using these measures)
- change to more productive animal fodder
- handling of farm manure in bio-digesters to eliminate methane emissions: capturing of methane resulting from the decomposition of farm waste in bio-digesters

4.2. Carbon Trading and Agriculture

Under the Clean Development Mechanism (CDM), developed (also referred to as Annex I) countries can implement project activities that reduce emissions in developing (non-Annex I)

¹⁵ World Development Indicators, 2005

¹⁶ <http://unfccc.int/resource/docs/natc/ecunc1s.pdf>

countries. Though the CDM is expected to generate investment in developing countries, especially from the private sector, and promote the transfer of environmentally-friendly technologies in that direction, the global share of agricultural sector projects (including afforestation and reforestation) is very small (5.71% of total registered projects globally as of December 2009)¹⁷ and the potential is country-specific. Latin America, as a region, currently holds the largest share of registered agricultural projects globally, 61% (75 projects).

As of December 2009, there are 13 registered projects in Ecuador, representing a very small share of projects (3%) in LAC. Currently, there are 4 registered CDM projects in agriculture in Ecuador, with no projects registered under the "afforestation and reforestation" category¹⁸. This is a shortcoming given the impact of the sector on GHG emissions in the country.

The World Bank has mobilized a fund to demonstrate projects that sequester or conserve carbon in forest and agro-ecosystems. The BioCarbon Fund, a public/private initiative administered by the World Bank, aims to deliver cost-effective emission reductions, while promoting biodiversity conservation and poverty alleviation. In principle, the BioCarbon Fund can consider purchasing carbon from a variety of land use and forestry projects; its current portfolio includes Afforestation and Reforestation, Reducing Emissions from Deforestation and Degradation and the Fund is currently exploring innovative approaches to account for agricultural soil carbon.

5. Impact of Climate Change on Agriculture - Adaptation Measures

According to climate scenarios developed for the First National Communication on corn, rice, soybeans and potato, it has been concluded that these crops are vulnerable to climate change as follows: there will be an insufficient supply of rice of 49% and of 17% for potato by 2010 under a pessimistic scenario (temperature increase of 2°C and precipitation decrease of 15%), while as for 2030 the situation is even worse: deficit of rice production of 60% under the optimistic scenario (temperature increase of 1°C and precipitation increase of 20%) and for potato production of 34% under a pessimistic scenario.

5.1. Action Frameworks

The First National Communication identified several adaptation projects by sector, waiting for funds in order to be implemented. Six of these projects are in the agricultural sector as follows: implementation of agro-ecological zoning for corn, soy and rice in the Guayas river basin; introduction of better yielding varieties of corn, soy and rice in the Guayas river basin; installation of irrigation systems in Guayas and Guayllabamba river basins; adequate use of fertilizers in the Guayas and Guayllabamba river basins; and research on the variability and climate change in Ecuador which will be executed nationally. The Ministry of Environment is promoting adaptation measures in the agricultural sector through an initiative that finances small community projects in 6 watersheds identified as priority because of their current vulnerability.

5.1.1. Land Management

According to the Ministry of Agriculture, Livestock, Aquaculture and Fisheries, 47.9% of the country's territory is affected by soil erosion at different degrees. The areas most affected by this process are situated in the highlands, in the Andean region (70% of it) towards the pushing limit of the agricultural frontier. The coast also suffers this problem in the Western half of it, toward the ocean. In the Amazon, the soil erosion problem is related directly to deforestation activities. The two latter make up the remaining 30% of soil erosion in the country¹⁹.

¹⁷ <http://cdm.unfccc.int/Statistics/Registration/RegisteredProjByScopePieChart.html>

¹⁸ <http://cdm.unfccc.int/Projects/projsearch.html>

¹⁹ <http://www.fao.org/docrep/t1765e/t1765e13.htm>

The First National Communication has identified the use of compost “beds” and recycling of waste resulting from harvesting of rice, as a measure to reduce methane emission from inundated rice fields. The result of using the recycled or composted biomass would be an improvement of the physical and chemical properties of the soil, thus stimulating the nutrition of plants and increasing productivity.

In addition to this, the implementation of agricultural zoning, appropriate sowing and harvest time, along with the introduction of better yielding crop varieties and proper use of fertilizers, are other measures to be used to adapt to future climate change.

5.1.2. Water Use

Rapid shrinkage of glaciers in the Andean countries, for example in Bolivia, Chile, Ecuador and Peru, could lead to droughts which would affect people and the biodiversity of the region. An observed increase in run-off has only been temporary. It cannot last very long without increasing precipitation. The melting of glaciers will cause water shortage for millions of people in the region. This is the main vulnerability in the Andean region²⁰.

Agriculture accounts for 82% of all freshwater withdrawal in Ecuador. The percentage of total cropland that is irrigated represents 28.8% in 1999, three times the South American average of 8.9%²¹.

In Ecuador, approximately a fourth of the country’s territory is affected by drought (almost 75,000km²). Drought has been identified by the Ecuadorian Government as being one of the eleven most pressing environmental problems the country is facing, along with the worsening of the process of desertification.

The First National Communication identified the proper use of irrigation methods for each crop and production area, thus reducing a potential water deficit, as a measure of adapting to climate change in the water sector.

Aside from the national communication, concrete planned or ongoing adaptation projects funded under the GEF include the **Adaptation to climate change through effective water governance project**. The project’s objective is to reduce Ecuador’s vulnerability to climate change through effective water resource management. Three major project outcomes are envisioned: (i) strengthened policy environment and governance structure for effective water management through the mainstreaming adaptation to climate change in water governance structures; (ii) improved information and knowledge management on climate risk in Ecuador and (iii) application of sustainable water management and water related risk management practices to withstand the effects of climate change. This project is to be funded through the SCCF and to be implemented by UNDP²².

Another project is the **Design and implementation of adaptation measures to address glacial melt in the central Andes**, to be funded through the SCCF and to be implemented by the World Bank. It is planned to support: (i) institutional analysis, legal and regulatory assessments, a stakeholder analysis and consultation process, and public awareness for the implementation of adaptation measures; and (ii) design and implementation of pilot adaptation projects in selected communities, and key economic sectors where vulnerability is greatest and the region’s interest is the highest²³.

²⁰ http://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200609_background_latin_american_wkshp.pdf

²¹ http://earthtrends.wri.org/pdf_library/country_profiles/agr_cou_218.pdf

²² http://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200609_background_latin_american_wkshp.pdf

²³ http://unfccc.int/files/adaptation/adverse_effects_and_response_measures_art_48/application/pdf/200609_background_latin_american_wkshp.pdf

5.2. Social Aspects and Interventions

Many people in rural areas derive their livelihoods from agriculture and can be disproportionately affected by changes in climate.

Ecuador is home to one of the most diverse populations of any Latin American country. After Bolivia, Ecuador has the second highest number of indigenous peoples in South America. Indigenous communities and afro-Ecuadorians represent the poorest of Ecuador's five million rural poor. According to the World Bank figures (2005), 87% of Ecuador's indigenous peoples are poor. This percentage rises to 96% in rural zones of the altiplano. Moreover, extreme poverty affects 56% of indigenous people and 71% of those inhabit the rural mountainous regions. This high poverty rate is primarily attributable to several factors, among them the lack of farm and off-farm employment opportunities and limited access to factors of production and basic social services²⁴.

There are several on-going initiatives working to reduce the vulnerability of the rural poor:

1. **UNDP-GEF Project: Adapting to Climate Change through Effective Water Governance in Ecuador.** The goal of this project is to mainstream climate change risks in water management practices in Ecuador specifically by increasing the adaptive capacities of water resource management in the energy and agriculture sectors. This project aims to facilitate and catalyze the implementation of efficient water management practices in Ecuador. The timeframe is 2008-2012.
2. The **Autonomous National Institute of Agricultural Research²⁵ (INIAP**, Spanish acronym), generates and provides appropriate technologies, products, services and specialized workshops to contribute to the sustainable development of the agricultural, agro-forestry and agro-industry sectors. INIAP has developed a series of mechanisms related to the mitigation and adaptation of climate change.
3. The **Ecuadorian Agroecology Coordinating Office (CEA**, Spanish acronym) leads a national network consisting of diverse members, including grassroots community organizations, NGOs, universities, producers associations and cooperation agencies, among other stakeholders involved in natural resource management. One of the CEA's projects, *Communication to Manage Sustainable Production Systems*, supports small farmers' plot management through systematization, information exchange, and on-line advisory support for agro-ecological management of the main pests and diseases, by implementing four infocenters in different provinces of Ecuador. The project promotes systematization and dissemination of agro-ecological practices, to manage the main pests and diseases in participants' cropping systems²⁶.
4. The **National Institute for Training of Rural Farm Workers (INCCA**, Spanish acronym), operated by the Ministry of Agriculture, promotes capacity building and technology transfer programs in the rural sector of Ecuador. By doing so, INCCA focuses on providing men and women, indigenous peoples, afro-Ecuadorians, agriculturalists and agrobusinesses with the knowledge and tools to facilitate strong performance in the agro-industrial and agro-productive sectors. The goal of INCCA is to contribute to the overall social, economic and environmental development of Ecuador through the modernization of the agro-fishery sector²⁷.

²⁴ <http://www.ruralpovertyportal.org/spanish/regions/americas/ecu/index.html>

²⁵ www.iniap-ecuador.gov.ec/

²⁶ http://www.iicd.org/copy_of_sectors/articles/iicdprojects.2005-11-23.8342052097/

²⁷ http://siteresources.worldbank.org/INTENBREVE/Newsletters/20608425/May05_71_EC_Poverty_Ass.pdf

5. **Camari** was initiated in 1981 as a complement to the work of **FEPP**, a Christian development agency, which assists farmers throughout Ecuador. Camari works to facilitate marketing agricultural and handicraft products on behalf of several hundred peasant groups. This work enables these small farmers, or “campesinos,” to remain in their home communities instead of leaving to find scarce work in the cities. Camari unites people, works to ensure they receive stable, fair income and enables them to carry on family traditions of working the land, as well as preserving indigenous culture through the creation of traditional crafts²⁸.
6. The International Institute for Communication and Development is working to strengthen the information and training network for producers working with the Camari-FEPP fair trade system. In particular it seeks to focus on the use of Information and Communication Technology (ICT) for the provision of fair-trade market information to traders and farmers. CAMARI - FEPP markets agricultural products on the domestic and international level sustainably, on the basis of equitable trade to improve living conditions for small producers, with an objective of producing and marketing products. This project seeks to enable small indigenous and non-indigenous farmers to market their products, and guarantee increased sales volume by providing information on supply and demand, costs and pricing, and product quality in order to set marketing strategies. This will increase impact on the domestic market by leaving the intermediaries – who erode farmers’ livelihoods – out. One specific objective of this project is to enable Afro-Ecuadorian and indigenous small-farmer member organizations to learn about market requirements in order to orient production and marketing. In addition, the project aims to establish an information and communication system to link producers with CAMARI, in order to effectively sell products on the national and international market²⁹.

5.3. Insurance Instruments

Agricultural insurance was first introduced in Ecuador in 1980 through CONASA (public agriculture insurance company). At the end of the 1980s CONASA was dissolved and private sector started offering agricultural insurance. Small farmers are obliged to purchase agricultural insurance if they want to access public sector loans, however there is not government subsidies for agricultural insurance. In 2008, the “mandato agrícola” was enacted by the Government to implement a public sector supported agricultural insurance scheme. The Ministry of Agriculture, Livestock, Aquaculture and Fisheries has created the **Agriculture Insurance Unit (UNISA**, Spanish Acronym) to support the implementation of the Ecuadorian Insurance Scheme. There are a total of 27,000 ha of cropland insured, representing 1.1% of total cultivated area (FAOSTAT). The risks covered are: frost, drought, floods, wind, snow and hail. A total of 12 crops are covered.

²⁸ http://www.tenthousandvillages.com/catalog/artisan_detail.php?artisan_id=105

²⁹ <http://www.bcoalliance.org/system/files/IICDCase+studies+BCO-SDC+meeting+16-08-07.pdf>



About *Country Notes on Climate Change Aspects in Agriculture...*

The **Country Notes** are a series of country briefs on climate change and agriculture for 19 countries in Latin America and the Caribbean region, with focus on policy developments (action plans and programs), institutional make-up, specific adaptation and mitigation strategies, as well as social aspects and insurance mechanisms to address risk in the sector. The **Country Notes** provide a snapshot of key vulnerability indicators and establish a baseline of knowledge on climate change and agriculture in each country. The **Country Notes** are the beginning of a process of information gathering on climate change and agriculture. The **Country Notes** are “live” documents and are periodically updated.



LATIN AMERICA AND THE
CARIBBEAN REGION
AGRICULTURE AND RURAL
DEVELOPMENT TEAM

Feedback

For comments and/or suggestions, please contact Svetlana Edmeades at sedmeades@worldbank.org

